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Virtual Assistant Toy Block With Scanner And Display

ABSTRACT

Toy blocks are used to teach children creativity, vocabulary, arithmetic, and to develop dexterity. Current toy blocks are typically not very interactive. This disclosure describes a toy block that includes a scanner and display, and has a virtual assistant built-in. The virtual assistant provides an interactive educational experience for users. With user and parent permission, the virtual assistant can answer spoken questions and play audio games with users. The toy block enables users to perform visual queries via the integrated camera. Information related to the scanned object is retrieved and provided to the user on the display and/or via audio.

KEYWORDS

- Toy block
- Smart block
- Virtual assistant
- Visual search
- Educational toy
- Educational app
- Pronunciation assistance

BACKGROUND

Toy blocks are used to teach creativity, vocabulary, arithmetic and dexterity. However, current toy blocks lack the ability for a two-way interaction with children, with adaptation to a changing environment.

DESCRIPTION

This disclosure describes a toy block that includes a scanner and display, and has a virtual assistant built-in. The virtual assistant provides an interactive educational experience for users. In an example configuration, a camera, is included on one face of the toy block with virtual assistant and a display screen is on another face. The toy block with virtual assistant includes features that enable users to interact with the toy block. For example, users can ask questions and play audio games with the toy block with virtual assistant.

The toy block with virtual assistant includes features that enable users to utilize the toy block to perform visual queries. In an example use, the toy block with virtual assistant is placed with the scanner side face down on top of a two-dimensional object such that the scanner detects the object. With user permission, a visual search is conducted using the captured image and information related to the detected object is presented on the display screen of the toy block and/or via audio. The toy block can also support other types of content capture are also supported. For example, mathematics problems, including numbers and operation signs, can be scanned using the toy block with virtual assistant. The toy block provides audio and visual responses that include assistance to solving the scanned mathematics problems. In another example the toy block is placed on top of numbers or a number of objects, and provides responses that facilitate the user learning to count.

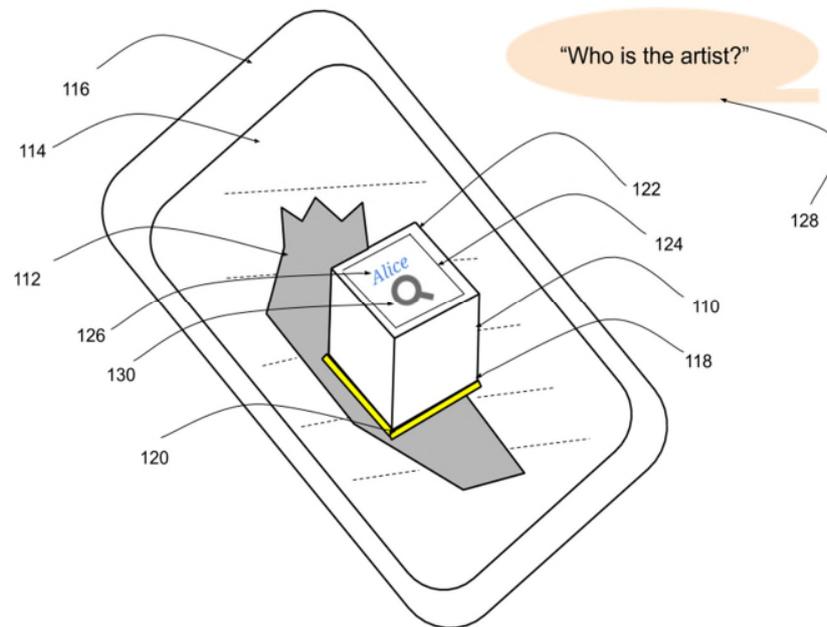
Example of use: visual search on images

Fig. 1: Example of a toy block with virtual assistant scanning a picture shown on a device

Fig. 1 illustrates a toy block that is used to scan a picture. A toy block (110), is used to capture a digital image of a picture (112), such as a depiction of a visual art piece, displayed on a screen (114) of a computing device (116). In the example illustrated in Fig. 1, the user invokes the virtual assistant with a query (128), "who is the artist?" Alternatively, a visual search can also be initiated by a user, e.g., by the use of a search icon (130) on the display screen (124). Upon receipt of the query, the scanner (118) uses a light source to shine a light from a scanner face (120) of the toy block (110) onto the picture (112) and obtains an image of the display. A visual search, such as a database search, based on the detected picture is conducted according to the voice query. The toy block responds to the voice query from the user. The toy block screen also displays information (126) related to the picture. In the illustrated example the visual art piece is

scanned by the toy block and through a visual search, the picture is recognized as by an artist Alice. The word “Alice” is displayed on the screen.

The toy block can include a capability to further interact with the computing device and augment the functionality of the computing device. The toy block can transmit search results regarding the picture, to the computing device and in response, the computing device can display additional information associated with the search results. For example, the computing device can display a link to biographical information about the artist, Alice.

In another example, the toy block with virtual assistant is placed on top of a picture of a bird. A user then asks by voice, “What is this type of bird?” The picture of the bird is scanned by the smart block to obtain an image of the bird. The type of bird is identified, e.g., by matching the bird image with database images of types of birds. Results are presented to the user by visuals on the display screen and/or by audio from a speaker of the toy block with virtual assistant.

Example of use: visual search on text

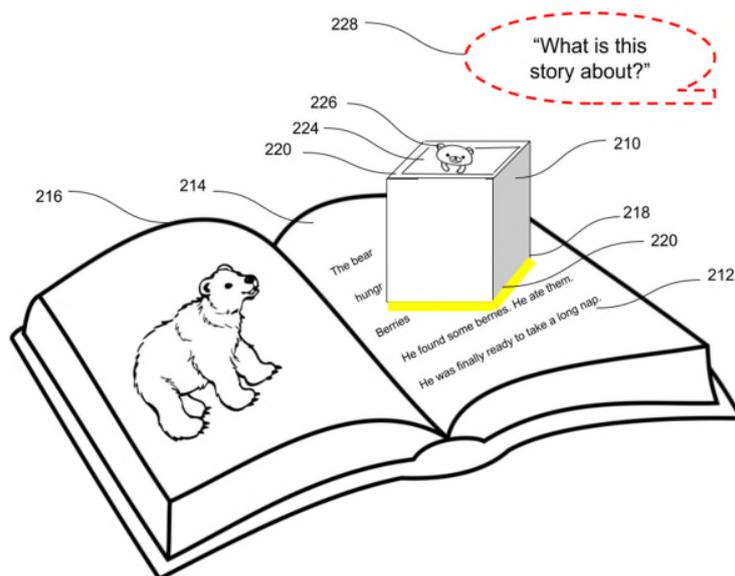


Fig. 2: Example of a Smart Toy Block scanning words on a page of a book

Fig, 2 illustrates another example where a toy block (210) is used to perform visual queries on a physical book. A digital image of a portion of the text (212), such as words of a story on a page (214) of a book (216) is obtained by a built-in scanner (218), e.g., in response to a voice query (228) from a user. For example, the query may be the question, “What is this story about?” (228). In response, a scanner (218) of the toy block (210) may be activated. The scanner includes a light source to shine a light from a face (220) of the toy block onto the text and a detector to capture the image. A face (222) opposite of the scanner of the toy block includes a screen (224) and is used to depict information (226) related to the text. Further, the toy block provides responses in the form of audio, e.g., to assist in pronouncing the words. In this manner, the toy block is used to scan written material to read along with the user and assist with pronunciation.

Further to the descriptions above, a user may be provided with controls allowing the user to make an election as to both if and when systems, programs or features described herein may enable collection of user information (e.g., information about a user’s social network, social actions or activities, profession, a user’s preferences, or a user’s current location), and if the user is sent content or communications from a server. In addition, certain data may be treated in one or more ways before it is stored or used, so that personally identifiable information is removed. For example, a user’s identity may be treated so that no personally identifiable information can be determined for the user, or a user’s geographic location may be generalized where location information is obtained (such as to a city, ZIP code, or state level), so that a particular location of a user cannot be determined. Parental controls may also be provided to limit activity of the toy block when used by children. Thus, the user may have control over what information is collected about the user, how that information is used, and what information is provided to the user.

CONCLUSION

This disclosure describes a toy block that includes a scanner and display, and has a virtual assistant built-in. The virtual assistant provides an interactive educational experience for users. With user and parent permission, the virtual assistant can answer spoken questions and play audio games with users. The toy block enables users to perform visual queries via the integrated camera. Information related to the scanned object is retrieved and provided to the user on the display and/or via audio.

REFERENCES

1. King, Martin T., Dale L. Grover, Clifford A. Kushler, and James Q. Stafford-Fraser. "Applying scanned information to identify content." U.S. Patent 8,005,720, issued August 23, 2011.